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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/770,854

02/03/2004

Keith W. Forsyth

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04/06/2006

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EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/770,854

Applicant(s)

FORSYTH, KEITH W.

Examiner

Michael P. Stafira

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 16-19, 32-34 and 47-56 is/are rejected.
- 7) ☒ Claim(s) 2-15, 20-31 and 35-46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/1/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 16-19, 32-34, 47-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Gregoris ('530).

#### **Claim 1**

Gregoris ('530) discloses acquiring a reflectance spectrum of light reflected off of a surface to be tested (See Abstract); calculating a midpoint wavelength of a transition in the reflectance spectrum (See Fig. 1); comparing the midpoint wavelength to a decision threshold wavelength; and identifying ice on the surface if the midpoint wavelength is greater than the, decision threshold wavelength (Col. 5, lines 44-65).

#### **Claim 2**

Gregoris ('530) further discloses detecting reflected light off of the surface with a near-infrared camera (Col. 4, lines 65).

#### **Claim 3**

Gregoris ('530) further discloses the reflectance spectrum comprises detecting reflectance levels at three wavelength bands (Fig. 6, lines 30a-30c).

**Claim 16**

Gregoris ('530) further discloses indicating the presence of ice on the surface comprises generating an audio or visual indication of the presence of ice on the surface (Fig. 6, Ref. 20).

**Claim 17**

Gregoris ('530) discloses acquiring a reflectance spectrum of light reflected off of a surface to be tested (See Abstract); calculating a midpoint wavelength of a transition in the reflectance spectrum (See Fig. 1); comparing the midpoint wavelength to a decision threshold wavelength; and identifying liquid water on the surface if the midpoint wavelength is less than the decision threshold wavelength (Col. 5, lines 44-65).

**Claim 18**

Gregoris ('530) discloses acquiring the reflectance spectrum comprises detecting light reflected off of the surface with a near-infrared camera (Col. 4, lines 65).

**Claim 19**

Gregoris ('530) discloses the step of acquiring the reflectance spectrum comprises detecting reflectance levels in three wavelength bands (Fig. 6, lines 30a-30c).

**Claim 32**

Gregoris ('530) further discloses the presence of liquid water on the surface comprises generating an audio or visual indication of the presence of liquid water on the surface (Fig. 6, Ref. 20).

**Claim 33**

Gregoris ('530) discloses measuring three reflectance levels of light reflected off of a surface in three wavelength bands (Fig. 6, lines 30a-30c); calculating a midpoint wavelength of a

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transition using the three reflectance levels (Col. 4-5, lines 63-65); indicating the presence of ice on the surface if output of the decision function falls within a first pre-determined range; and indicating the presence of liquid water on the surface if output of the decision function falls within a second pre-determined range (Col. 4-5, lines 63-65).

**Claim 34**

Gregoris ('530) discloses measuring the reflectance levels comprises detecting reflected light off of the surface with a near-infrared camera (Col. 4, lines 65).

**Claim 47**

Gregoris ('530) discloses indicating the absence of ice and liquid water on the surface when the output of the decision function falls between the first and second predetermined ranges (Fig. 6, Ref. 20).

**Claim 48**

Gregoris ('530) discloses a light source (Fig. 6, Ref. 12) for illuminating a surface to be tested; a detector for detecting at least three reflectance levels  $R_a$ ,  $R_b$ , and  $R_c$  at three wavelengths  $a$ ,  $b$ , and  $c$  (Fig. 6, lines 30a-30c); and a signal processor (Fig. 6, Ref. 18) having a decision function for determining the presence of ice or water on the surface based upon the at least three reflectance levels  $R_a$ ,  $R_b$ , and  $R_c$  (Col. 5, lines 44-65).

**Claim 49**

Gregoris ('530) further discloses the light source comprises one of an incandescent light, a laser, an LED, or sunlight (Col. 4, lines 65-66).

**Claim 50**

Gregoris ('530) discloses the detector comprises one of a near-infrared detector, an

infrared camera, an InGaAs focal-plane array, or a PbS vidicon (Col. 4, line 65).

**Claim 51**

Gregoris ('530) further discloses a spectrally-selective element for measuring the at least three reflectance levels (Fig. 6, lines 30a-30c).

**Claim 52**

Gregoris ('530) further discloses the signal processor (Fig. 6, Ref. 18) indicates the presence of ice on the surface when the output of the decision function falls within a first predetermined range (Fig. 6, Ref. 20).

**Claim 53**

Gregoris ('530) discloses the signal processor indicates the presence of liquid water on the surface when the output of the decision function falls within a second predetermined range (Col. 5, lines 1-29).

**Claim 54**

Gregoris ('530) further discloses the signal processor indicates the absence of ice and water on the surface when the output of the decision function falls between the first and second predetermined ranges (Col. 5, lines 30-65).

**Claim 55**

Gregoris ('530) discloses the decision function is:  $F = (R_b - R_c) * (R_a + R_b) (R_b + R_c) * (R_a - R_b)$  where F represents an absolute value (Col. 3, lines 27-32).

**Claim 56**

Gregoris ('530) further discloses an ambient light detector connected to the signal processor for measuring ambient light levels (Col. 5, lines 30-35).

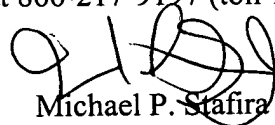
*Allowable Subject Matter*

3. Claims 2-15, 20-31, 35-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Michael P. Stafira  
Primary Examiner  
Art Unit 2877

March 31, 2006